## 1 CLAIMS

We claim:

3	1. A method comprising:
4	processing a data packet, having a destination address (d), towards a routing
5	destination; and
6	determining a default-route-prefix (P <sub>d</sub> ) in a default-route determination step, when in
7	a routing table cache (L <sub>1</sub> ) and in a routing table (L <sub>2</sub> ), there is no entry with a
8	destination address prefix that is a prefix of the destination address (d).
9	2. A method as recited in claim 1, wherein the default-route-prefix (P <sub>d</sub> ) is determined
10	• • • •
10	be a prefix of at least the destination address (d).

- 3. A method as recited in claim 1, wherein in a first lookup step for the destination address (d) the destination address prefix being a prefix thereof is searched in the routing table cache (L<sub>1</sub>), and wherein if said first lookup step results in not finding such destination address prefix, in a second lookup step for said destination address (d) the destination address prefix being a prefix thereof is searched in the routing table (L<sub>2</sub>).
- 4. A method as recited in claim 3, wherein if the second lookup step on the routing table (L<sub>2</sub>) results in finding the destination address prefix being a prefix of the destination address (d) a matching destination address prefix, the found destination address prefix entry is entered into the routing table cache (L<sub>1</sub>) in a cache update step, and the data packet is forwarded in a destination forwarding step to the corresponding routing destination.

- 5. A method as recited in claim 3, wherein if the second lookup step results in not finding the destination address prefix being a prefix of the destination address (d), in a default forwarding step the data packet is forwarded to a default routing destination.
  - 6. A method as recited in claim 1, wherein in a default-route caching step, the default-route-prefix (P<sub>d</sub>) is entered together with the default routing destination as an entry into the routing table cache (L<sub>1</sub>).
    - 7. A method as recited in claim 3, wherein in the first lookup step the routing table cache  $(L_1)$  is searched for covering path entries that reside in the routing table cache  $(L_1)$ , the covering path entries in their totality being a prefix for at least all destination address prefixes existing in the routing table  $(L_2)$ .
    - 8. A method as recited in claim 7, wherein in the event that the first lookup step results in finding no covering path entry for the destination address (d), the data packet is forwarded to a default routing destination in a default forwarding step.
    - 9. A method as recited in claim 7, wherein in the event that the first lookup step results in finding a covering path entry for the destination address (d), in a second lookup step for said destination address (d) the destination address prefix being a prefix of the destination address (d) is searched in the routing table (L<sub>2</sub>).
    - 10. A method as recited in claim 3, wherein in the event that the first lookup step results in finding the destination address prefix being a prefix of the destination address (d), the data packet is forwarded in a destination forwarding step to the corresponding routing destination.
    - 11. A method comprising:

1	processing a data packet, having a destination address (d), towards a routing
2	destination, wherein a default-route-prefix (Pd) resides together with a default
3	routing destination as an entry in a routing table cache (L1); and
4	forwarding the data packet to said default routing destination, when the
5	default-route-prefix (P <sub>d</sub> ) matches at least part of said destination address (d).
6	12. An article of manufacture comprising a computer usable medium having
7	computer readable program code means embodied therein for causing processing
8	of a data packet, the computer readable program code means in said article of
9	manufacture comprising computer readable program code means for causing a
10	computer to effect the steps of claim 1.
11	13. An article of manufacture comprising a computer usable medium having
12	computer readable program code means embodied therein for causing processing
13	of a data packet, the computer readable program code means in said article of
14	manufacture comprising computer readable program code means for causing a
15	computer to effect the steps of claim 11.
16	14. A program storage device readable by machine, tangibly embodying a program of
17	instructions executable by the machine to perform method steps for processing of
18	a data packet, said method steps comprising the steps of claim 1.
19	15. A program storage device readable by machine, tangibly embodying a program of
20	instructions executable by the machine to perform method steps for processing of
21	a data packet, said method steps comprising the steps of claim 11.
22	16. An apparatus comprising:

1	means for processing a data packet, having a destination address (d), towards a
2	routing destination; and
3	means for determining a default-route-prefix (Pd) in a default-route determination
4	step, when in a routing table cache (L1) and in a routing table (L2), there is no entry
5	with a destination address prefix that is a prefix of the destination address (d).
6	17. A computer program product comprising a computer usable medium having
7	computer readable program code means embodied therein for causing a
8	processing of a data packet, the computer readable program code means in said
9	computer program product comprising computer readable program code means for
10	causing a computer to effect the functions of claim 16.